REMARKS

The application has been amended and is believed to be in condition for allowance.

Claims 1-2 and 4-20 are pending, claim 3 having been previously cancelled and incorporated into claim 1.

There are no formal matters outstanding.

Claims 1-4, 6-10, and 17-20 stand rejected under §102 as anticipated by KOBAYASHI JP 6-272737 (KOBAYASHI '737).

Claims 5, 15, and 16 stand rejected under §103 as obvious over KOBAYASHI '737.

Claims 11-14 stand rejected under §103 as obvious over KOBAYASHI JP 6-272737 in view of KOBAYASHI 6,074,317 (KOBAYASHI '317).

The Official Action appears to give the recitation of "a rocking line" a meaning different than that used by those skilled in the art. See specification page 1, the second full paragraph, wherein it is disclosed that "[a] transition from this principal plane to the recessed lower part is commonly referred to as a rocking edge." The rocking edge is the curved transition surface between the flat principal plane and the recessed lower part.

To avoid having the "rocking edge" recitation read on a flat (flattened) part of an element, the independent claims have been amended.

The independent claims all recite that the curvature of the rocking edge has a non-constant radii. That is, claim 1 recites "the curvature of the rocking edge (12) is defined by a plurality of radii (R) that continuously increase in a radially inward direction"; claim 17 recites "the curvature of the rocking edge (12) is defined by a plurality of radii (R) that increase in a radially inward direction forming an elliptical curvature"; and claim 18 recites "the curvature of the rocking edge (12) is defined by an elliptical curvature…".

From each of these recitations, it is implicit that the rocking edge must be non-circular as a circular edge necessarily has constant radii.

In Figure 4 of KOBAYASHI '737, there is shown a rocking edge 6 of circular curvature.

Further, KOBAYASHI '737 does not show an elliptical curvature in rocking edge 6. Neither the text of KOBAYASHI '737, nor the drawing figures, teach or suggest an elliptical curvature for the rocking edge.

KOBAYASHI '737 discloses a rocking edge 6 with a convex circular face. See the attached machine translation of KOBAYASHI '737. Note paragraphs 24 and 27 disclosing a large radius of 71.5mm.

As there is nothing in KOBAYASHI '737 that teaches a non-circular curvature for rocking edge 6, the rejections should be withdrawn and the claims allowed.

Applicant notes that the curvature of the rocking edge of KOBAYASHI '737 was previously argued and that the present Official Action does not address this argument.

The last amendment noted "that the illustrated embodiment of JP 06-272737 is provided with a constant radius of curvature of 71.5 mm as seen in cross-section." Thus, the curvature of the rocking edge is not a new issue being raised by this amendment for the first time.

Also, the elliptical shape of original claim 4 was raised in the last amendment. The assertion that the reference teaches an elliptical shape is supported by the text or drawing figures of the reference.

Thus, like previously-applied KANEHARA et al., KOBAYASHI '737 teaches only a single and constant value R defining the rocking edge, i.e., a circular curvature.

Also, as to claim 7, the drawing figures of KOBAYASHI '737 show a flat portion of the element being coincide with the belts 2. Therefore, the claim 7 recitation of "... in a radial direction of the transmission belt (4) the rocking edge (12) at least partly coincides with the endless carrier (9)" is not seen as being anticipated.

The present invention, as recited, is believed to be both novel and non-obvious over the prior art. Accordingly, reconsideration and allowance of all the pending claims are respectfully requested.

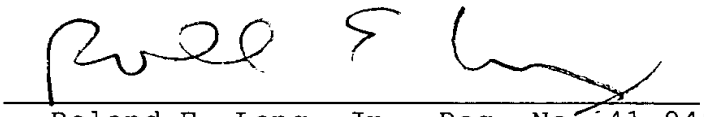
Entry of the above amendments is earnestly solicited. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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Appendix:

The Appendix includes the following item:

- translation of KOBAYASHI JP 6-272737

06-272737
Kobayashi

* NOTICES *
Japan Patent Office is not responsible for any damages caused by the use of this translation.
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the V belt for nonstep variable speed gears.
[0002]
[Description of the Prior Art] Conventionally, as a V belt for nonstep variable speed gears, the thing of a publication is known by JP,55-100443,A, for example.
[0003] Conventionally [above-mentioned], as shown in an official report at drawing 10 - drawing 12 , a mounting eclipse and the V belt which consists of the element 02 of a large number which are contacting principal plane 02a mutually are shown so that it can move to one endless ring 01 and this endless ring 01, and the element point serves as a tapering configuration by taper side 02b so that this V belt can be crooked by the pulley binding part.
[0004]
[Problem(s) to be Solved by the Invention] However, if it is in the above-mentioned conventional V belt for nonstep variable speed gears Since the front-face side of an element 02 serves as principal plane 02a, taper side 02b, and a configuration that has borderline 02c, Since an element 02 is made into the revolution pitch radius R which had borderline 02c of principal plane 02a and taper side 02b fixed and this revolution pitch radius R always performs power transfer If the circumference of the V belt to be used, a wheel base, and a sheave angle are decided, pulley ratio width of face and a heart gap property are decided geometrically, and these modification or amelioration are difficult.
[0005] In the V belt for nonstep variable speed gears which is wound around a pulley and transmits power, the place which this invention was made paying attention to the above problems, and is made into the object is shown in aiming at reduction of a heart gap while not adding modification to the circumference of a V belt, a wheel base, and a sheave angle at all but aiming at buildup of pulley ratio width of face.
[0006]
[Means for Solving the Problem] In order to attain the above-mentioned object, in a V belt for nonstep variable speed gears of this invention, it considered as a tapering configuration which has a **convex circular face** which continues an element point smoothly from a principal plane.
[0007] It is the V belt for nonstep variable speed gears which is wound around a pulley and transmits power. Namely, one or two or more endless rings, It consists of an element of a large number which are contacting a mounting eclipse and a principal plane mutually so that it can move to this endless ring. It is characterized by making an element point into a tapering configuration which has a **convex circular face** which continues said element point smoothly from said principal plane in a V belt for nonstep variable speed gears used as a tapering configuration so that this V belt can be crooked by pulley binding part.
[0008]
[Function] When twisting the V belt for nonstep variable speed gears around 2 sets of pulleys and transmitting power, an element contacts mutually by the principal plane and transmits power, and by the pulley binding part, in order that an element may incline relatively, an element

contacts mutually by the principal plane and the **convex circular face**, serves as a revolution pitch radius as which the path of this contact section determines a pulley ratio, and transmits power at a bay.

[0009] Although the revolution pitch radius which the contact section of the adjoining element moves to the pulley outer-diameter side of a **convex circular face**, and is decided by the contact section will specifically serve as size since the relative inclination of elements becomes small if the diameter of a pulley turns into a major diameter If the diameter of a pulley turns into a byway, since the relative inclination of elements will become large, The contact section of the adjoining element moves to the pulley bore side of a **convex circular face**, and the revolution pitch radius which determines a pulley ratio changes according to the diameter of a pulley as the revolution pitch radius decided by the contact section becomes small.

[0010]

[Example] Hereafter, the example of this invention is explained based on a drawing.

[0011] First, a configuration is explained.

[0012] Drawing 1 - drawing 3 are drawings showing the V belt for nonstep variable speed gears of this invention example.

[0013] The V belt for nonstep variable speed gears of an example consists of many elements 1 and endless Ring 2, as shown in drawing 1 - drawing 3 .

[0014] Contacting [are formed so that friction contact may be carried out with the inner skin of endless Ring 2, and] a principal plane 3 mutually, said element 1 is arranged that there is no crevice in the longitudinal direction of endless Ring 2, and it is attached so that it can move to endless Ring 2.

[0015] As for said endless Ring 2, two or more endless ring element 2a is formed in piles in the shape of a layer.

[0016] The element point consists of **convex circular face**s 6 which were formed in tapering off to the principal plane 3, and were formed so that it might continue smoothly in contact with both the taper side 5 with cone-angle theta, and this taper side 5 and a principal plane 3. And there is a borderline of a principal plane 3 and the taper side 5 for the revolution pitch radius R of the element of the conventional example.

[0017] In addition, 7 is the projection formed in the principal plane 3 by the side of a belt travelling direction, and engages with the hollow (not shown) of the adjoining element 1.

[0018] Next, an operation is explained.

[0019] It becomes the revolution pitch radius whose path of this contact section an element 1 contacts mutually by the principal plane 3 and the **convex circular face** 6 since an element 1 inclines at a pulley binding part relatively [when twisting the V belt for [power transfer operation] nonstep variable speed gears around 2 sets of pulleys and transmitting power, in a bay, an element 1 contacts mutually by the principal plane 3, and transmit power and], and determines a pulley ratio, and power is transmitted.

[0020] Here, since the relative inclination of element 1 comrades of a pulley binding part will also change if a pulley ratio changes, the contact section of a principal plane 3 and the **convex circular face** 6 also changes according to a pulley ratio.

[0021] Since the relative inclination of element 1 comrades will become small if change of the [pulley ratio width-of-face buildup operation] contact section is explained concretely, and the diameter of a pulley turns into a major diameter, as it is shown in drawing 4 , the contact section moves to the pulley outer-diameter side of the **convex circular face** 6, and it is the revolution pitch radius RL. Compared with the conventional revolution pitch radius R, it becomes large. Moreover, if the diameter of a pulley turns into a byway, since the relative inclination of element 1 comrades will become large, as it is shown in drawing 5 , the contact section moves to the pulley bore side of the **convex circular face** 6, and it is the revolution pitch radius RS. Compared with the conventional revolution pitch radius R, it becomes small.

[0022] Thus, since a revolution pitch radius changes according to the relative inclination of

element 1 comrades, compared with the conventional example, it can be still lower in a low pulley ratio, a high pulley ratio can be made still higher, and pulley ratio width of face can be increased.

[0023] Incidentally, the experimental result which this invention person performed is shown in drawing 6 .

[0024]

* Experiment specification Belt circumference : 600 mm A wheel base : 150 mm Element thickness: 2.2 mm **Convex circular face radius : 71.5mm** Cone angle : As shown in 4.8 degree* experimental result drawing 6 , when both secondary pulley strokes were set to 0-16mm, the pulley ratio increased from 2.5 to about 2.9 compared with the former. That is, pulley ratio width of face improved about 30% compared with the conventional example.

[0025] When pulley ratio width of face is decided to be predetermined width of face, a secondary pulley stroke required in order to secure this pulley ratio width of face has less this example compared with the conventional example, and can be managed with the same conditions as the [heart gap reduction operation] above. For this reason, a heart gap of a pulley is crossed to the whole region, and can be made small.

[0026] Incidentally, the experimental result which this invention person performed is shown in drawing 7 .

[0027]

* Experiment specification Belt circumference : 600 mm A wheel base : 150 mm Element thickness: 2.2 mm **Convex circular face radius : 71.5mm** Cone angle : 4.8 degrees Pulley ratio width of face : As shown in 0.4 - 2.5* experimental result drawing 7 , compared with the conventional example, the heart gap of a pulley crossed throughout the pulley ratio, and the direction of an example became small.

[0028] In the pulley ratio 1.0 neighborhoods a heart gap becomes the largest, reduction of a heart gap of about 0.15mm was attained by making especially both primary pulleys and secondary pulleys stroke.

[0029] If it is in the V belt for nonstep variable speed gears of an example as explained above In the V belt for nonstep variable speed gears which is wound around a pulley and transmits power Since the element point was formed in tapering off to the principal plane 3 by the **convex circular face** 6 which continues smoothly in contact with both the taper side 5 with cone-angle theta, and this taper side 5 and a principal plane 3, Modification is not added to the circumference of a V belt, a wheel base, and a sheave angle at all, but while aiming at buildup of pulley ratio width of face, reduction of a heart gap can be aimed at.

[0030] As mentioned above, although the drawing has explained the example, a concrete configuration is not restricted to an example, and even if there are modification, an addition, etc. in the range which does not deviate from the summary of this invention, it is included in this invention.

[0031] For example, although the example showed what formed the **convex circular face** 6 in the transverse-plane side of an element 1, you may make it form in both sides of an element 21 the **convex circular face** 26 which touches both a principal plane 23 and the taper side 25, as are shown in drawing 8 , and the **convex circular face** 16 which touches both a principal plane 13 and the taper side 15 may be formed in the back side of an element 11 and it is shown in drawing 9 . In addition, 17 and 27 are projections which engage with the hollow (not shown) of the adjoining elements 11 and 21 here.

[0032] Moreover, although the example showed what has the taper side 5 as an element point configuration, it is good also as an element point configuration only by the **convex circular face** which continues smoothly from a principal plane and a principal plane.

[0033]

[Effect of the Invention] It writes as the tapering configuration which has the **convex circular face** which continues an element point smoothly from a principal plane, and modification does

not add at all to the circumference of a V belt, a wheel base, and a sheave angle, but while aiming at buildup of pulley ratio width of face, in the V belt for nonstep variable speed gears which is wound around a pulley and transmits power if it is in this invention as explained above, the effect that reduction of a heart gap can aim at is acquired.

[Translation done.]